

REMARKS

This Reply to Office Action is responsive to the Office Action mailed on July 15, 2003. Claims 1-29 are pending in the present application.

The Examiner has rejected claims 1-7 and 21-22 under 35 U.S.C. 112, first paragraph, as failing to comply with the enabling requirement. However, on page 2, paragraph 6, lines 9 and 10, the specification states that the crimpable portion is "tapered from the point toward one of the first and second ends." On page 8, paragraph 31, line 1, the specification describes the "contoured" crimp section. The abstract also sets forth that the crimpable portion is "tapered from the point toward one of the first and second ends." As such, Applicant believes that the claimed crimpable portion was described in the specification in such a way as to enable one skilled in the art to make or use the invention.

The Examiner has rejected claims 2, 15 and 22 under 35 USC 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In response, Applicant has amended the claims to specifically describe the invention.

The Examiner has rejected claims 1-4, 8-10, 14-17 and 21-23 under 35 USC 102(b) as being anticipated by U.S. Patent No. 4,370,022 issued to Johnson (the Johnson patent). In response, Applicant has amended independent claims 1, 8 and 14.

The Johnson patent discloses an optical waveguide splice having a connector with an elastomeric tubular body 12 having circumferential outwardly extending retention cones 20 that are located at the center of the body. The body also includes a passageway 14 that receives three cylindrical rods 8. The rods are aligned to form a passageway 44 that receives the fiber. A crimping collar 26 is inserted on each end of the body. Each crimping collar has a conical bore 28 that

mingly engages the retention cones. As shown in Figures 4A, 5A and 6A, the crimping collars are moved inwardly to establish an interference engagement with the tubular body. As the crimping collars engage the step 18, compression forces are exerted on the body and the rods positioned therein. The crimping collars are moved further inwardly along the body until the collars are positioned over the retention cones. As the crimping collars move along the body, so does the compression force that is exerted on the body and the rods. Thus, as set forth in column 4, lines 48-52, the clamping of the rods proceeds from the ends of the splice toward the middle of the splice.

With respect to claims 1-4, the Johnson patent fails to teach or disclose a fiber optic connector having an elongated member retained in a housing and a ferrule disposed within the elongated member as set forth in amended independent claim 1. In the office action, the Examiner states that the Johnson patent does not illustrate a housing. The Johnson patent also fails to explicitly or implicitly describe placing the tubular body in a housing. As such, the "housing" limitation cannot be anticipated from the Johnson patent. Additionally, the Examiner has referred the Applicant to claims 12 and 13 of the Johnson patent for a teaching of a "ferrule." Claim 12 of the Johnson patent, however, describes the "ferrule" as being "mounted over the ends of the tubular means, and engaging the first profile means for radially compressing the tubular means." According to the description in the Johnson patent, the "ferrule" that is referenced in claim 12 would refer to the crimping collars 26 that are mounted over the tubular body and engage the retention cones extending from the tubular body. As such, this limitation cannot be anticipated by the Johnson patent. Accordingly, the Johnson patent does not anticipate independent claim 1 or claims 2-7 that depend therefrom.

With respect to claims 8-10, the Johnson patent fails to teach or disclose a fiber optic connector having an elongated member retained in a housing or a crimpable portion being disposed

within a housing as set forth in independent claim 8. As discussed above, with respect to claim 1, the Johnson patent does not explicitly or implicitly describe placing the tubular body or a crimpable portion in a housing. Instead, the Johnson patent discloses a connector having a tubular body with outwardly extending retention cones that are compressed by crimping collars. Thus the crimpable portion, e.g. the retention cones, and the tubular body are not retained or disposed within a housing. The Johnson patent also fails to teach a crimp die that applies a force to the crimpable portion that is greater at a point between the ends of the crimpable portion. Instead, the Johnson patent teaches the use of crimping collars to clamp the tubular body in a progressive manner from the ends towards the center of the body. As such, the Johnson patent does not anticipate independent claim 8 or claims 9-13 that depend therefrom.

With respect to claims 14-17, the Johnson patent fails to teach or disclose a fiber optic connector having an elongated member retained in a housing, a ferrule disposed within the elongated member and the connector being crimpable by a crimp tool having opposed dies wherein at least one crimp die is tapered from a point between the first and second ends to at least one of the ends as set forth in independent claim 14. As discussed above with respect to claim 1, the Johnson patent fails to explicitly or implicitly describe placing the tubular body in a housing or having a ferrule disposed within the tubular body. Furthermore, instead of disclosing a crimp tool having a crimp die being tapered from a point to one of the ends of the die, the Johnson patent discloses retention cones extending from the tubular body being crimped by crimping collars that are slid over the tubular body. The crimping collars of the Johnson patent have an inner bore with a conical shape that matingly engage the retention cones. As such, the Johnson patent does not anticipate independent claim 14 or claims 15-20 that depend therefrom.

With respect to claims 21-23, the Johnson patent fails to teach or disclose a method of providing a housing with first and second ends, providing an elongated member with a ferrule holding portion at one end and a crimpable portion distinct from the ferrule holding portion, providing a ferrule, inserting and affixing the fiber within the ferrule aperture, inserting the ferrule at least partially into the ferrule holding portion of the elongated member, affixing the ferrule at least partially within the ferrule holding portion of the elongated member so as to retain the insert within the crimpable portion of the elongated member, and inserting and affixing the elongated member into the housing as set forth in independent claims 21 and 23. Additionally, with respect to claim 23, the Johnson patent also fails to teach or disclose the step of crimping the crimpable portion of the elongated member while simultaneously crimping a buffer crimp portion.

Instead, the Johnson patent teaches the assembly of an optical waveguide splice having an elastomeric tubular body with circumferential outwardly extending retention cones. As set forth in column 3, lines 30-67 and column 4, lines 1-55, the connector is assembled by first inserting the rods into the body. Next, the crimping collars are mounted over opposite ends of the body and a shipping wire is inserted in the passage between the rods in the body. The crimping collars are simultaneously moved inward to engage the second step of the body causing the body and the rods to compress. The wave guides are then inserted into the passageway between the rods. The crimping collars are moved to the final crimping position where they engage the retention cones extending from the body. This method of assembly disclosed by the Johnson patent does not include the steps of inserting and affixing a fiber within a ferrule aperture, inserting a ferrule at least partially into a ferrule holding portion of the elongated member, affixing the ferrule at least partially within the ferrule holding portion of the elongated member so as to retain an insert within the crimpable portion of the elongated member, and inserting and affixing the elongated member into

the housing. The method of assembly disclosed by the Johnson patent also fails to include the step of crimping the crimpable portion of the elongated member while simultaneously crimping a buffer crimp portion.

Additionally, as discussed with respect to claim 1, the Johnson patent does not teach or disclose a connector having a "housing" or a "ferrule." The crimping collars positioned over the tubular body do not act as a "ferrule holding portion" positioned in the tubular body or a "ferrule" that receives a stub fiber and is positioned in the ferrule holding portion. As a result, the Johnson patent does not teach the steps of providing a housing, providing an elongated member with a ferrule holding portion and providing a ferrule.

Since that waveguide splice disclosed in the Johnson patent does not include all of the elements of the fiber optic connector of the present invention, the method set forth in independent claims 21 and 23 would not have been an obvious method of assembly. Claims 21 and 23, and the claims that depend therefrom, are not anticipated by or obvious in view of the Johnson patent.

Additionally, with respect to new independent Claim 26, the Johnson patent does not anticipate independent claim 26 or the claims that depend therefrom because the Johnson patent fails to teach a fiber optic connector with a crimpable portion disposed within a housing that is crimped by crimp dies that apply an axially perpendicular force to compress the crimpable portion. As discussed above, the Johnson patent teaches the use of crimping collars that exert a force along the body as the collars are progressively moved from the ends of the body towards the center of the body. As such, the Johnson patent does not anticipate independent claim 26 or the claims that depend therefrom.

Accordingly, Applicant respectfully submits that independent claims 1, 8, 14, 21, 23 and 26, and the claims that depend therefrom, are allowable over the Johnson patent.

The Examiner has rejected claims 5-7, 11-13, 18-20, 24 and 25 under 35 USC 103(a) as being unpatentable over the Johnson patent in view of U.S. Patent No. 5,396,572 issued to Bradley et al. (the Bradley patent). The Bradley patent illustrates a fiber optic connector having a cap 150 with a first end that receives a barrel 190 and a second end that is disposed within a crimping sleeve 160. The barrel in the first end of the connector receives a ferrule 110 that holds a glass fiber while a strain relief boot 190 is positioned over the crimp sleeve at the second end of the connector.

With respect to claims 5-7, the Bradley patent fails to teach or disclose an elongated member that includes a crimpable portion and a ferrule that is disposed within the elongated member as set forth in independent claim 1. The Bradley patent also fails to teach or disclose an insert that is disposable within the crimpable portion as set forth in independent claim 1. As discussed above, the Johnson patent fails to teach or disclose a connector having an elongated member retained in a housing and a ferrule disposed within the elongated member. Since the Johnson patent and the Bradley patent both fail to illustrate the claimed invention, a combination of the Johnson patent and the Bradley patent would also fail to teach or disclose the invention as set forth in independent claim 1 and the claims that depend therefrom.

Additionally, there would have been no motivation to one having ordinary skill in the art at the time of the invention to combine the invention disclosed by the Bradley patent with that of the Johnson patent because it is not desirable to position the tubular body of the Johnson patent within a housing. If the tubular body were positioned within a housing, the crimping collars would not be accessible to be disengaged, as required by the Johnson patent (see col. 5, lines 27-32), in order to accommodate the repair or replacement of any of the terminated waveguides. Also, the tubular body of the Johnson patent is designed to hold the alignment rods and the waveguides. There is no

motivation to provide a larger tubular body so that a ferrule could also be disposed within the tubular body.

With respect to claims 11-13, the Bradley patent fails to teach or disclose a crimp die applying a force to the crimpable portion of the connector that is greater at a point between the ends of the crimpable portion as set forth in independent claim 8. As discussed above, the Johnson patent fails to teach or disclose a fiber optic connector having an elongated member retained in a housing or a crimpable portion being disposed within a housing. Since the Johnson patent and the Bradley patent both fail to illustrate the claimed invention, a combination of the Johnson patent and the Bradley patent would also fail to teach or disclose the invention as set forth in independent claim 8 and the claims that depend therefrom.

With respect to claims 18-20, the Bradley patent also fails to teach or disclose a fiber optic connector with a crimpable portion disposed within a housing that is crimped by crimp dies being tapered from a point between the first and second ends to one of the ends as set forth in independent claim 14. As discussed above, the Johnson patent fails to teach or disclose a fiber optic connector having an elongated member retained in a housing, a ferrule disposed within the elongated member and the connector being crimpable by a crimp tool having opposed dies wherein at least one crimp die is tapered from a point between the first and second ends to at least one of the ends. Since the Johnson patent and the Bradley patent both fail to illustrate the claimed invention, a combination of the Johnson patent and the Bradley patent would also fail to teach or disclose the invention as set forth in independent claim 14 and the claims that depend therefrom.

The Johnson patent and the Bradley patent, either alone or in combination, fail to teach or disclose the invention as set forth in independent claims 1, 8 and 14. As such, the fiber optic connector disclosed in claims 5-7, 11-13 and 18-20 would not have been obvious in view of the

Johnson patent combined with the Bradley patent. Accordingly, Applicant respectfully submits that claims 5-7, 11-13 and 18-20 are allowable over the Johnson patent combined with the Bradley patent.

With respect to claims 24 and 25, as discussed above with respect to claims 21 and 23, the Johnson patent fails to disclose a method of assembling a fiber optic connector having a housing with opposed first and second ends, an elongated member retainable in the housing with a ferrule holding portion and a crimpable portion distinct from the ferrule holding portion and a ferrule disposable in the ferrule holding portion. The Johnson patent also fails to disclose a method of assembling the fiber optic connector by providing a crimp tool having opposed crimp dies where at least one of the crimp dies is tapered (as discussed with respect to independent claim 14), stripping a layer from the field fiber to expose a glass fiber core, placing the connector on one of the crimp dies, lightly closing the opposed crimp dies over the connector to retain the connector on the tool, inserting the glass fiber through the elongated member into the aperture of the ferrule so that it contacts the stub fiber and forcefully closing the crimp dies over the connector to crimp the crimpable portion to retain the field fiber in contact with the stub fiber in the ferrule. Instead, the Johnson patent teaches assembling a connector by mounting crimping collars on either end of a tubular body and moving the collars towards the center of the body to compress the body.

The Bradley patent fails to teach or disclose the method of assembling a connector by providing a crimp tool having opposed crimp dies where at least one of the crimp dies is tapered, stripping a layer from the field fiber to expose a glass fiber core, placing the connector on one of the crimp dies, lightly closing the opposed crimp dies over the connector to retain the connector on the tool, inserting the glass fiber through the elongated member into the aperture of the ferrule so that

it contacts the stub fiber and forcefully closing the crimp dies over the connector to crimp the crimpable portion to retain the field fiber in contact with the stub fiber in the ferrule.

The Johnson patent and the Bradley patent, either alone or in combination, fail to teach or disclose the method of terminating an optical fiber with the fiber optic connector as set forth in independent claim 24. Thus, the method for terminating an optical fiber disclosed in independent claim 24 and dependent claim 25 would not be obvious to one skilled in the art in view of the Johnson patent combined with the Bradley patent. Accordingly, Applicant respectfully submits that independent claim 24 and dependent claim 25 are allowable over the Johnson patent combined with the Bradley patent.

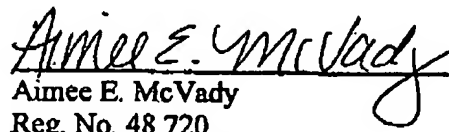
In view of the above, Applicant submits that claims 1-29 are allowable and favorable reconsideration is respectfully requested.

The Commissioner is authorized to charge Deposit Account No. 16-0228 in the amount of \$158.00 for payment of the additional claims. The Commissioner is also authorized to charge any additional fees (or credit any overpayment) associated with this communication to our deposit account.

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Respectfully submitted,

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